

AGENDA

Wednesday

December 3, 2014

**TOWN OF EASTHAM
BOARD OF SELECTMEN
WORK SESSION AGENDA
Wednesday, December 3, 2014
2:30 PM**

Location: Timothy Smith Room

- 2:30 PM Wastewater Status of Eastham Comprehensive Waste Water Management Plan (CWMP)
Discussion – Nate Weeks, Engineer, GHD and Mike Domenica, Consultant to Orleans
Wastewater Program
- 3:00 PM Municipal Water Engineering & Interconnect – Mark White, Paul Millet and Ryan Trahan,
Environmental Partners

Minutes:

January 8, 2014	Executive Session
January 13, 2014	Executive Session
February 10, 2014	Work Session
April 9, 2014	Work Session
April 14, 2014	Executive Session
November 17, 2014	Regular Session
November 17, 2014	Executive Session
November 19, 2014	Work Session
November 19, 2014	Executive Session

EXECUTIVE SESSION

To discuss strategy with respect to collective bargaining with non union personnel when an open meeting may have a detrimental effect or the bargaining and litigating position of the public body and the chair is so declaring.

Upcoming Meetings

<i>Monday, December 15, 2014</i>	<i>5:00 PM</i>	<i>Regular Meeting</i>
<i>Wednesday, December 17, 2014</i>	<i>2:30 PM</i>	<i>Work Session</i>
<i>Monday, January 5, 2015</i>	<i>5:00 PM</i>	<i>Regular Meeting</i>
<i>Wednesday, January 7, 2015</i>	<i>2:30 PM</i>	<i>Work Session</i>

**Per the Attorney General's Office: The Board of Selectmen may hold an open session for topics not reasonably anticipated by the Chair 48 hours in advance of the meeting.*

**If you are deaf or hard of hearing or are a person with a disability who requires an accommodation, contact Laurie Gillespie-Lee, 508-240-5900 x207*

Potential Site Disposal Evaluation

Disposal Overview



Concrete Leaching Chambers

2.

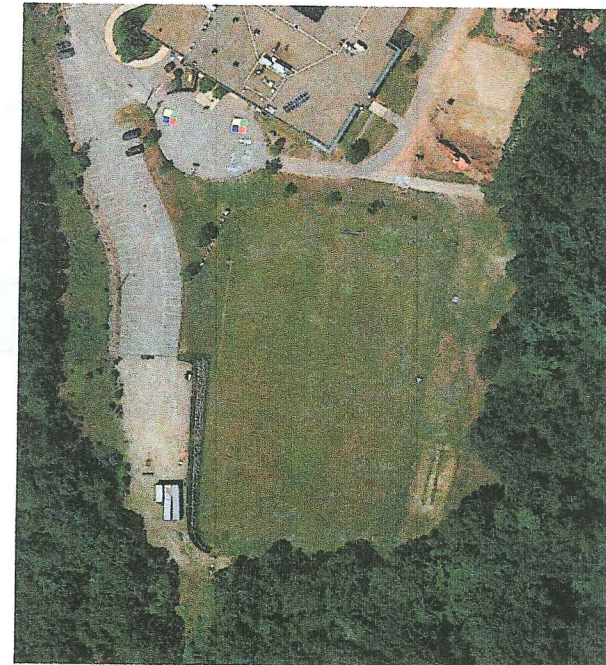
- H-20 loading
- Precast concrete units
- Arranged to suit area
- Primary uses under parking lots/vehicle access ways
- Most expensive option

can go under paving.



Plastic Leaching Chambers

- H-10 loading with 12" cover *under fields/ open space*
- 1 to 3 feet in width, length varies as needed
- Primary uses under fields and recreation areas



Sand Beds

- Components visible and accessible
- Typically in fenced in area - *no other use.*
- Land cannot be used for any other purpose.
- Cheapest option for disposal



Potential Site Disposal Evaluation

Evaluation Method:

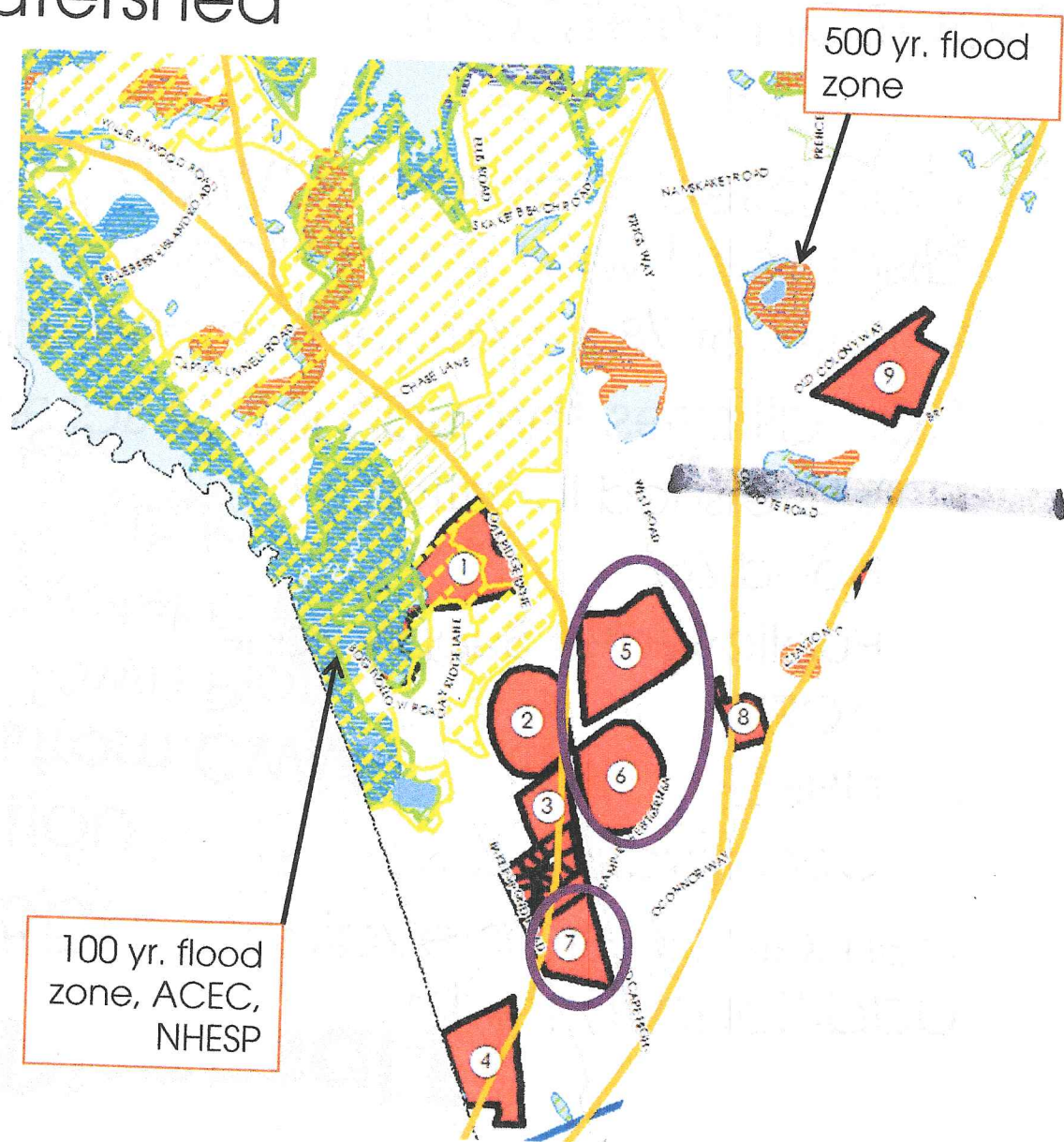
1. Compiled sites from CWMP and additional sites discussed with Town Planner
 - Total of 28 sites (refer to matrix and map)
2. Ran all sites through initial screening process:
 - Watershed location
 - Flood Zone
 - Public Water Supply Zone II
 - ACEC
 - NHESP
 - Conservation Land
3. Remaining ^{seven} sites evaluated further using additional criteria

Initial Screening Process

Cape Cod Bay Watershed

- Eliminated sites located in Namskaket
 - Sites 1 through 4
 - Note: Site 1 is Tri-Town
- Eliminated sites located in Rock Harbor
 - Sites 8 & 9

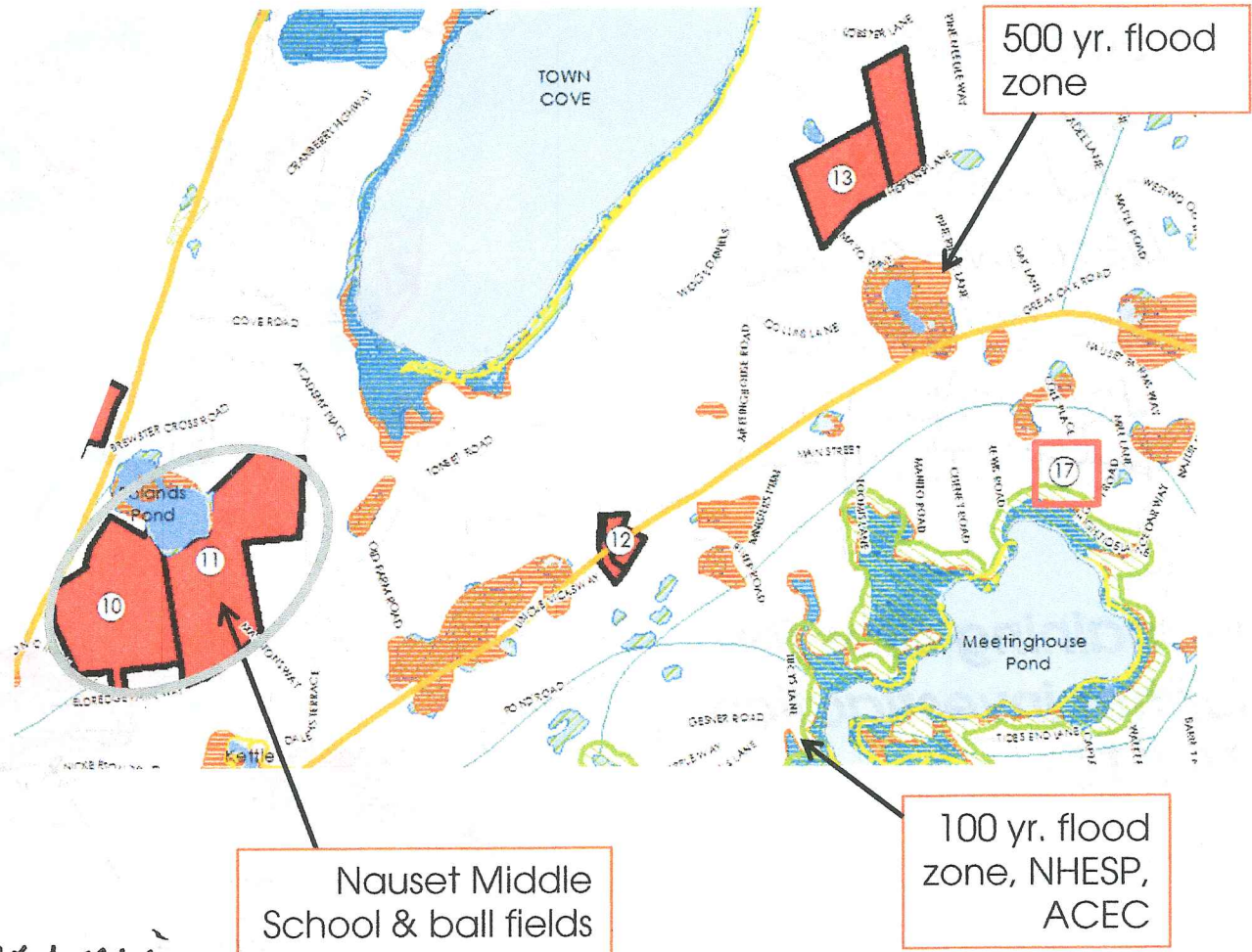
Remaining sites for further investigation:
5, 6 & 7



Town Cove & Meetinghouse Pond Watershed

Town Cove & Meetinghouse Pond Watershed

- Watersheds require significant nitrogen loading removal
- Disposal in watershed would result in TMDL exceedance
- Eliminated sites 12, 13 and 17
- **Sites 10 & 11 remain for potential reclaimed water irrigation - health -**



drip disposal below ground so no health issue.

8.

- Sites 14 & 27 within environmental sensitive areas
- Site 28 is land owned by National Park

15 & 16



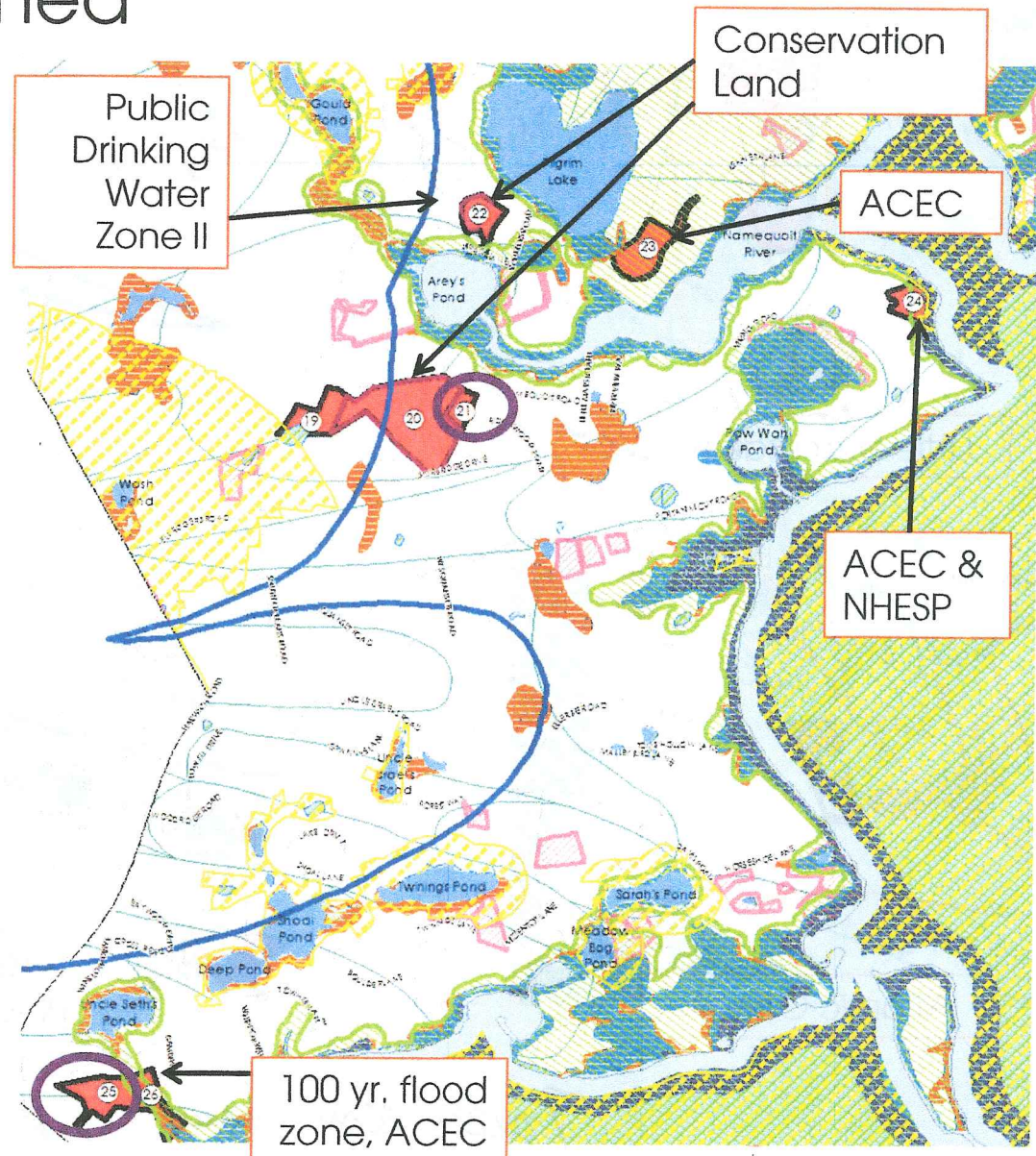
Initial Screening Process

Pleasant Bay Watershed

- Sites 19, 20, 22, 23, 24 & 26 within environmental sensitive areas

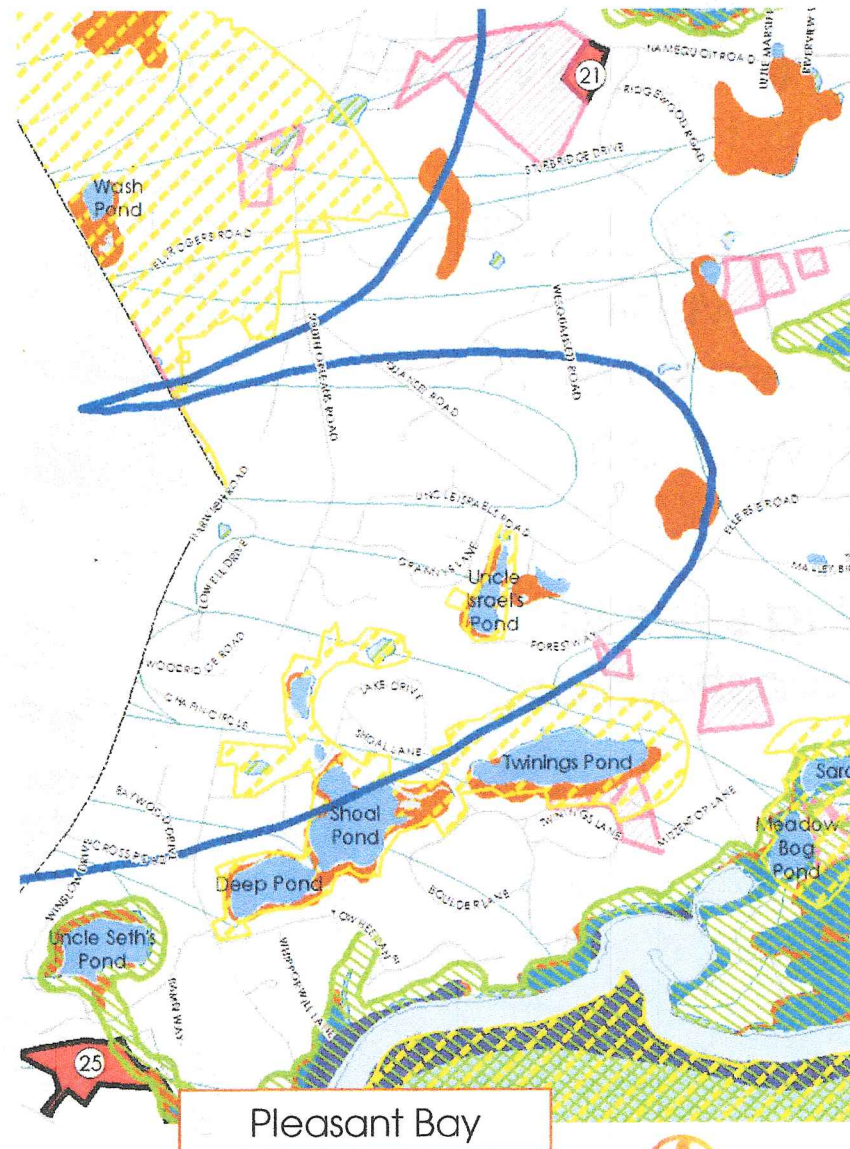
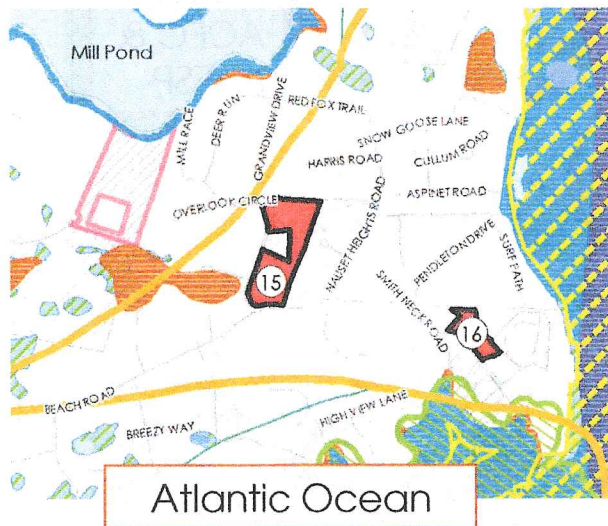
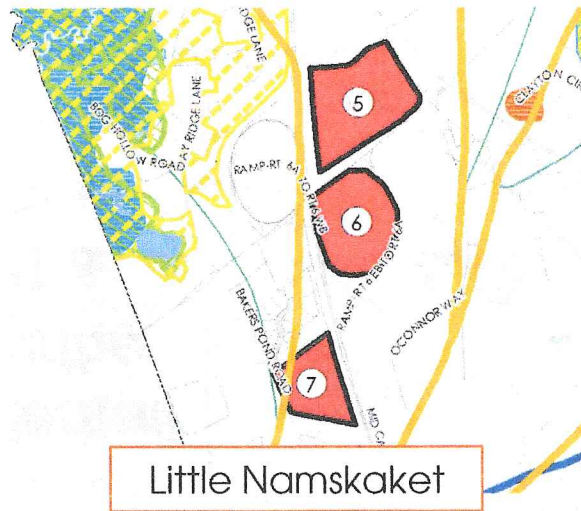
Remaining sites for further investigation:

21 & 25



Initial Screening Process

Remaining Sites



7 sites remaining

Potential Site Disposal Evaluation

11.

Further Investigation

- Remaining sites further investigated using the following criteria:
 - Ownership
 - Topography
 - Distance from wetlands/fresh water ponds
 - Soil conditions
 - Area/Flow Capacity
- Depth to groundwater to be completed during on-site investigation

Site 5

12,

- Watershed:
 - Little Namskaket Creek
- Sub-watershed:
 - Little Namskaket
- Owner:
 - Private
- Topography:
 - Flat/existing parking lot
- Distance from wetlands:
 - >500 feet
- Soil Conditions:
 - Loamy coarse sands
- Area Flow Capacity:
 - 210,000 – 525,000 gpd

105,000 FT² MAX
DISPOSAL AREA

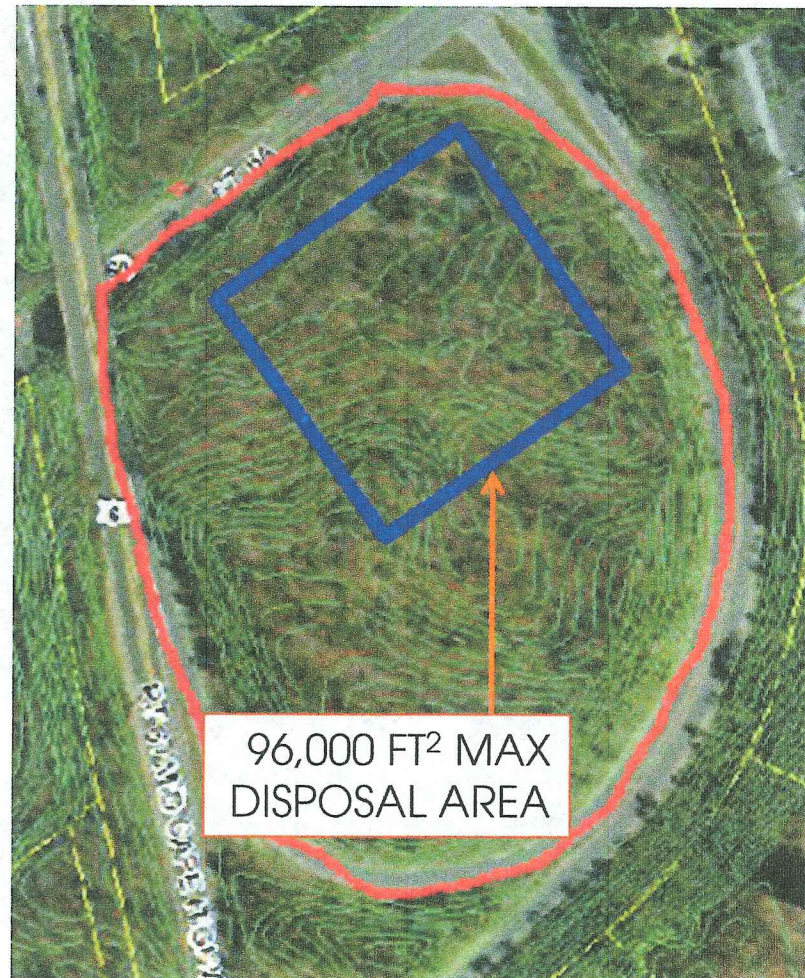


would need concrete
chambers

Site 6

- Watershed:
 - Little Namskaket Creek
- Sub-watershed:
 - Little Namskaket
- Owner:
 - MassDOT
- Topography:
 - Very Hilly
- Soil Conditions:
 - Loamy coarse sands
- Distance from wetlands:
 - >500 feet
- Area Flow Capacity:
 - 192,000 – 480,000 gpd

*In cloverleaf.
Has b-A curb cut,*



Site 7

14.

- Watershed:
 - Namskaket Creek
- Sub-watershed:
 - Namskaket Main
- Owner:
 - Private *N-Star*
- Topography:
 - Flat
- Distance from wetlands:
 - >500 feet
- Soil Conditions:
 - Carver coarse sands
- Area Flow Capacity:
 - 108,000 - 270,000 gpd

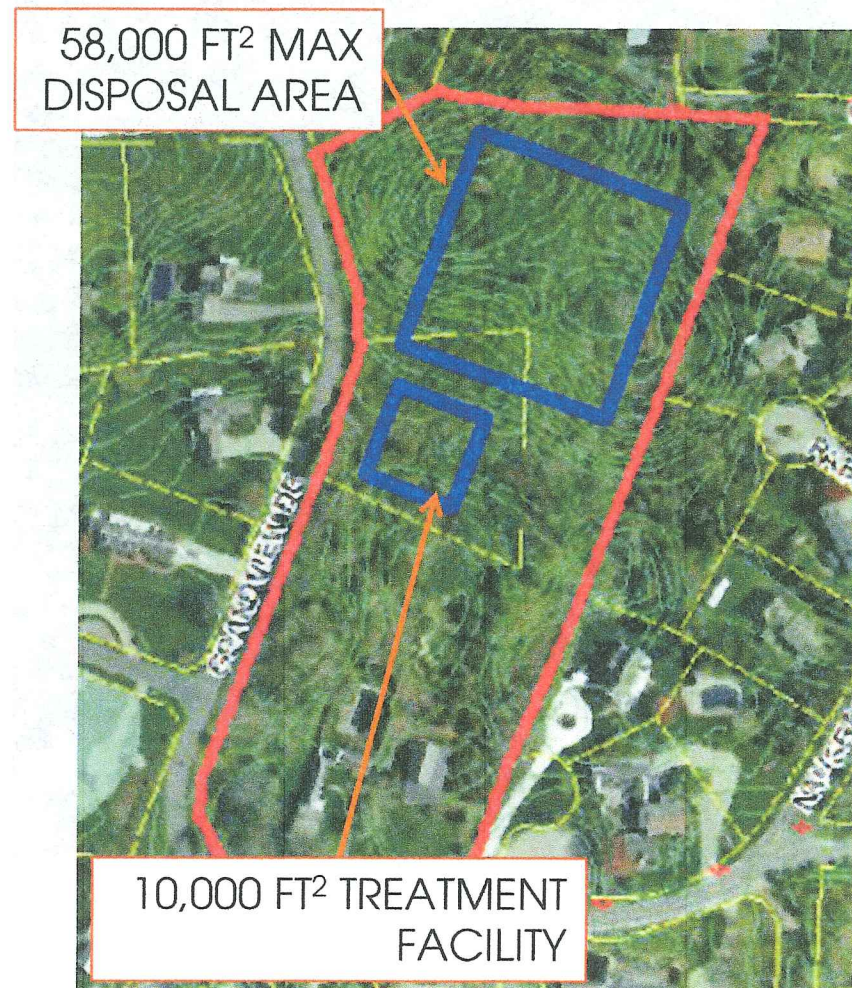


Subsurface - use as fields

Site 15

15.

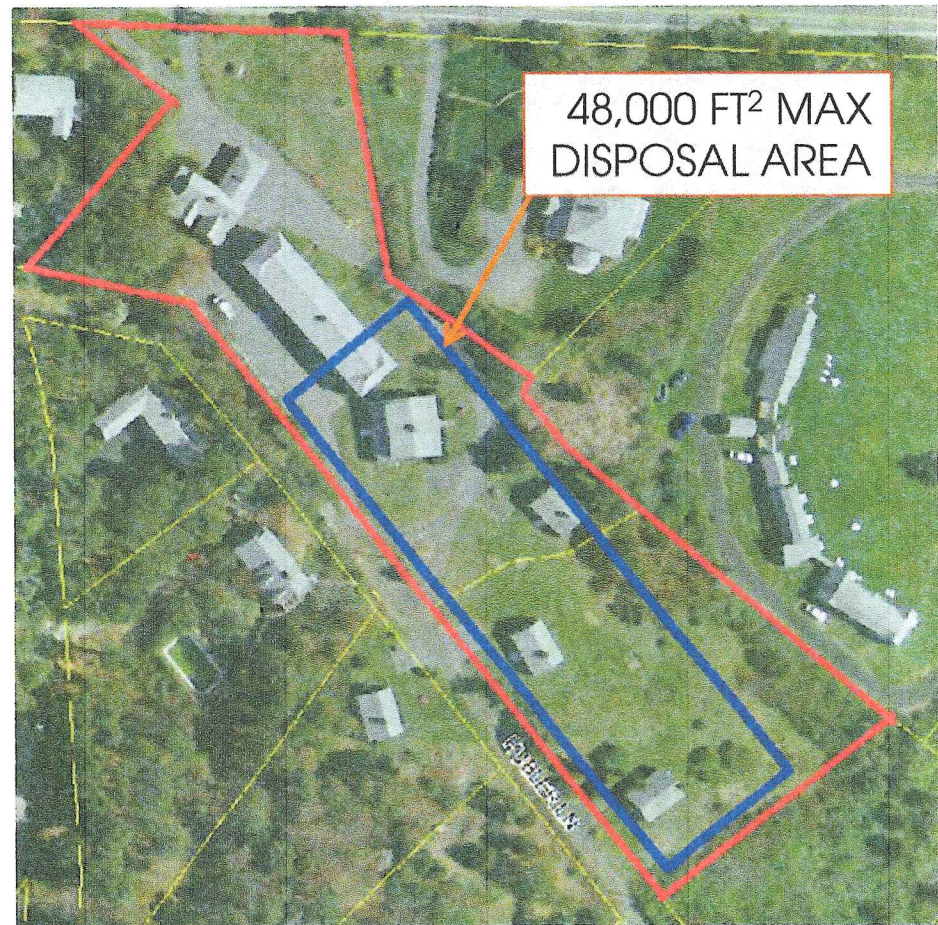
- Watershed:
 - Atlantic Ocean
- Sub-watershed:
 - Atlantic Ocean
- Owner:
 - Private
- Topography:
 - Steep slopes on site
- Distance from wetlands:
 - >500 feet
- Soil Conditions:
 - Nantucket sandy loam
- Area Flow Capacity:
 - 116,000 - 290,000 gpd



Site 16

16.

- Watershed:
 - Atlantic Ocean
- Sub-watershed:
 - Atlantic Ocean
- Owner:
 - Town of Orleans
- Topography:
 - Flat
- Distance from wetlands:
 - 350'
- Soil Conditions:
 - Carver coarse sand
- Area Flow Capacity:
 - 96,000 - 240,000 gpd

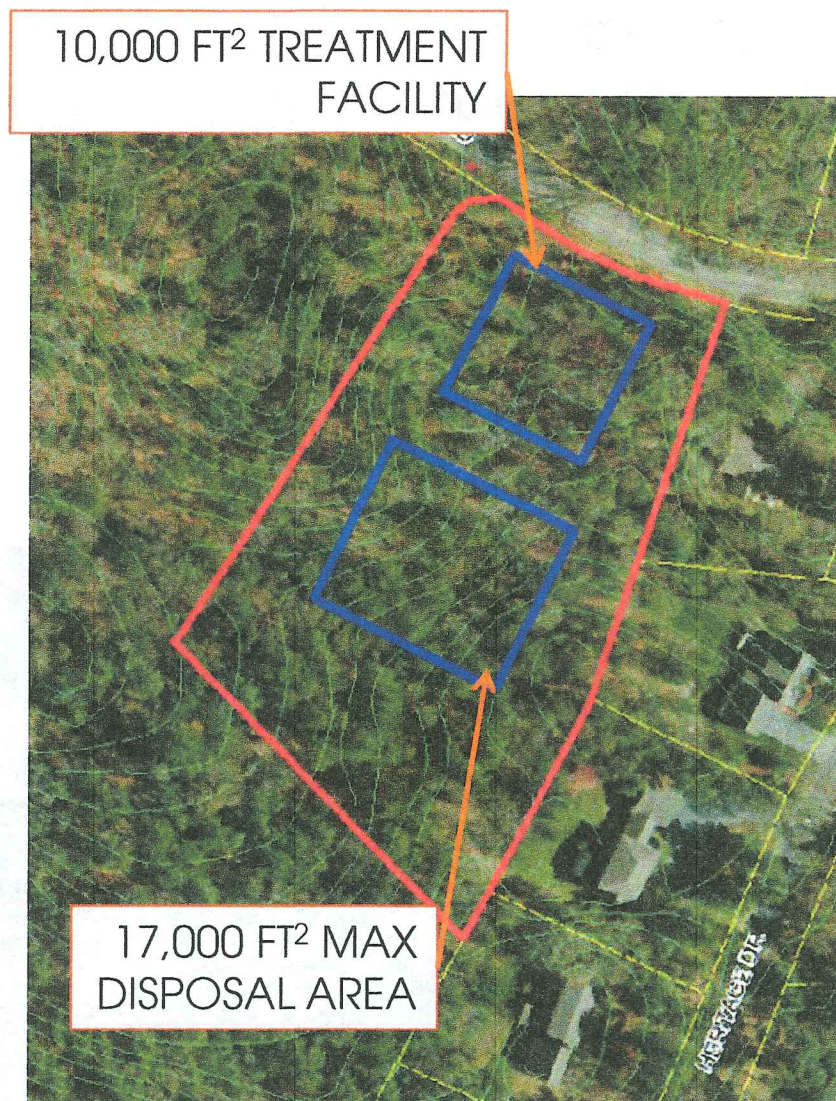


note by N. Beach

Site 21

17.

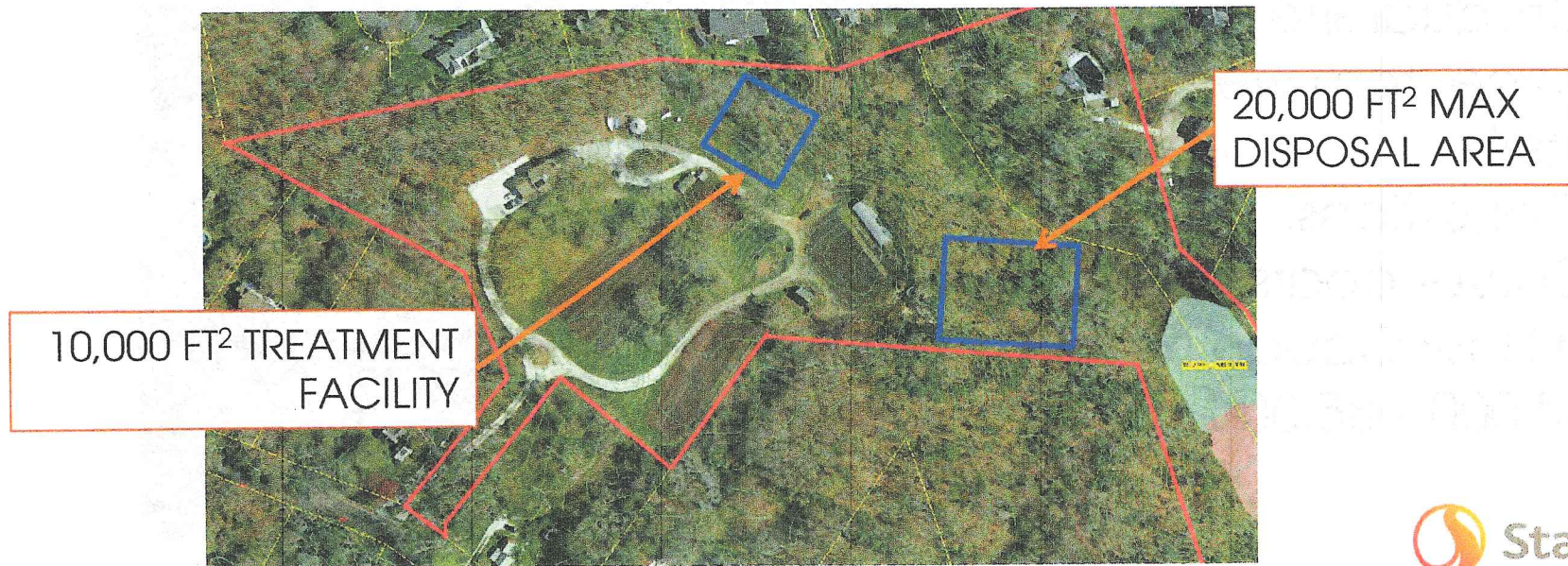
- Watershed:
 - Pleasant Bay
- Sub-watershed:
 - Namequoit River LT 10
- Owner:
 - Private - *may sell*
- Topography:
 - Gradual site slope
- Distance from wetlands:
 - 250'
- Soil Conditions:
 - Carver coarse sand
- Area Flow Capacity:
 - 34,000 - 85,000 gpd



Site 25

18.

- Watershed:
 - Pleasant Bay
- Sub-watershed:
 - Tar Kiln Stream LT 10
- Owner:
 - Private
- Topography:
 - Gradual site slope
- Distance from wetlands:
 - On Site
- Soil Conditions:
 - Coarse carver sands
- Area Flow Capacity:
 - 40,000 – 100,000 gpd



To: Eastham BOS

From: Sandy Bayne

Nov. 3, 2014

12/3
+ 12/17
agenda

Update on OWQAP (Orleans Water Quality Advisory Panel)

Since our first report, which dealt mainly with organizational strategies and the role of Eastham liaisons, there has been a massive amount of work and a large number of issues generated for the panel to review. Because the Orleans BOS hopes to bring articles to spring town meeting, work is being done on all parameters **simultaneously**. These will include all options re TriTown. (See figure 1, Plan Development Progress)

Underlying assumption is that the formula used for the MEP reports is valid.

Current status of the process: Orleans has hired Stantec to help the Panel make a range of decisions. It is expected that the decisions will combine the qualities of good science, best affordability and social acceptance. ALL options are on the table.

To find the best options, Stantec consultants are providing two scenarios each for sub-watersheds in Nauset Marsh system, Pleasant Bay (PB), and Rock Harbor (RH). Salt Pond is not included as that sub watershed is entirely in Eastham, and Nauset Marsh itself needs no remediation .

These scenarios are nicknamed bookends, meaning they are the extremes, i.e., one uses only traditional solutions, such as sewerage, satellite systems, and septic systems and is called the Traditional or T bookend, and the other explores only non traditional alternatives, and is called the Non Traditional or NT bookend.

The eventual solution for each sub-watershed will likely be a hybrid of the two, as in most cases neither can solve the problem alone. The consultants are beginning to modify these extremes already, eliminating those solutions which appear less productive or completely unfeasible. While the Cape year round population is

250,000, we have 6 million visitors in 4 summer months, thus creating rather unusual conditions against which solutions must be tested.

Some Panel members pointed out that data is now old in several areas. "Adaptive management" will come into the picture as new information becomes available during the implementation and as the less fully studied alternatives, if any are chosen, are utilized on a trial basis.

- **Status of Eastham:** In Sept., I raised the issue of the relevancy of Eastham's 2009 S & W ww study, Rask I/A report, pond studies, etc. with Mike Domenica. He agreed they are important to the process and asked that they be sent to him to put on the WQAP website. (Which is within the Orleans Town website.) Charles forwarded a list of the relevant documents and I forwarded some of the actual documents.

At the Sept. 10 meeting the facilitators were asked if possible solutions to be reviewed would include those in other towns, and the reply was yes, solutions would eventually need to be watershed based. The % of the total N removal for which Orleans and Eastham may be responsible was suggested for T.C. and R. H. (See watershed reports below.) This raised a pivotal question which the Panel must resolve through discussion with Eastham: How to consider Eastham's contribution of N, prevention of N, and assistance in N removal in shared watersheds?

Of course the Seashore's contribution is relevant, but the CCNS attendee has stopped attending.

- **Carrots/sticks:** Paul Niedzwiecki reports that if towns with shared watersheds have not formed a Waste Management Agency by June 30, 2015, DEP may impose a Water Pollution Abatement District. This body is created by the legislature and may act unilaterally. A Waste Management Agency obviously implies inter-town cooperation. These may take various

2.
What is this

forms and that too is under consideration. I asked if Eastham may have some leeway for working on municipal water.

Stacie Smith, facilitator for the Panel as well as for the 208 process, has told me there may be some financial assistance available to Eastham. (See comments about 208 plan below.)

- **Credits for preventive measures:** DEP, MEPA and CCC, when reviewing ww projects, will look to see if all preventive measures have been taken. For example, that fertilizer control has been implemented and storm water management has been planned/implemented. (Brian Dudley of DEP stated emphatically that this will be applied to consideration of the towns' request to reclassify R.H.) Therefore all scenarios developed by the consultants assume fertilizer and storm water runoff controls will be implemented and they show appropriate reduction in N removal needed.
- **Education/outreach component:** Because Orleans BOS would like to place ww articles onto the Orleans May 2015 town meeting warrant, it will be necessary to begin to work on educational outreach soon. How should Eastham proceed on that?
- **Freshwater:** Although the county wide 208 report mentions, but then largely ignores, freshwater ponds, there seems to be a consensus on the Panel that they need to be dealt with in the Orleans plan. (I have raised that issue several times at both 208 and WQAP. The most recent (modified) T and NT plans show some relief for prevention of P into ponds by sewerage and by other means, such as floating islands, but sedimental phosphorus control has not been considered.
- **Specific sub-watersheds:**
 - Town Cove sub-watershed** Eastham's portion of the total nitrogen contribution to Town Cove is estimated to be 27.5%; Orleans is 72.5%.

The T bookend assumes sewerage of 254 out of 366 lots in Eastham. (See attachments 2, 3 and 4)

The T bookend notes that if all Orleans portions of T.C. were sewerage, and none of Eastham's portion was, the TMDL's would not be met. Too, using T only, treated wastewater must be disposed out of the sub-watershed to meet TMDL's.

The NT bookend uses a permanent reactive barrier (PRB) near Salt Pond, several floating wetlands, two "fertigation" wells and eco-toilets in the Eastham portion of the sub-watershed. Studies are proceeding elsewhere on whether quahogs as well as oysters may be useful.

Rock Harbor sub-watershed CCC estimate is that Orleans is responsible for 75% and Eastham 25% of required N removal. The forward motion here is dependent of course on the possible reclassification of the harbor. Whatever the result of the UAA application, this sub-watershed will be considered under an adaptive management plan. To meet current TMDL's, treated ww must be deposited outside of the sub-watershed. In an e-mail from Domenica "We are developing a plan for Rock Harbor Creek that will include T, NT, and adaptive planning that will include provision for the UAA initiative if we choose to employ it, after adaptive plan gives us more information and before we build sewers."

Too, Eastham should be aware of the SMAST study on Cedar Pond as Orleans decisions there affect our combined watershed. (See Town of Orleans website under Marine and Fresh Water Quality Task Force.)

I raised the benthic sampling question but the dredging began before they could act.

Namskaket Marsh/TriTown sub-watershed All experts who have studied Namskaket were gathered for a day long exercise with the hope a

way forward would be found re use of Tri Town and discharge under Namskaket. Most of the experts had high certainty that no sewage or discharge does now or would impinge on the marsh, but there was enough uncertainty that it was agreed a new study would be commissioned. This study would test the marsh for the extent, continuity and depth of the clay/peat layer. If it proves to be as extensive and whole as they assume it will, there would seem to be little reason not to utilize the Tri town site for some level of treatment. However...

- **Disposal site evaluation:** A thorough review of all other possible Orleans disposal and treatment sites is being done. That review includes use of satellite treatment plants at some of those sites. Deep water Atlantic Ocean disposal is also being considered.
- **Financial model:** Consultant is providing assistance on this as well; in early stages. Risk assessment will be part of that calculation.
- **Waste to energy study:** There had been some interest in this possibility. Consultant conclusion: not enough volume here, even if combined with food waste and solids from other treatment plants.

Recommendations to you:

- **Immediately re-engage GHD.** There is too much information for your reps (and you) to absorb and the issue is far too important not to do so. (See CCC offers below.)
- **Send a letter to the WQAP** re the importance of including freshwater concerns in the planning process. So far there seems to be conceptual assent, but the consultant needs to be reminded to always include freshwater ponds in evaluating options.
- **Meet with Smith and Domenica.**

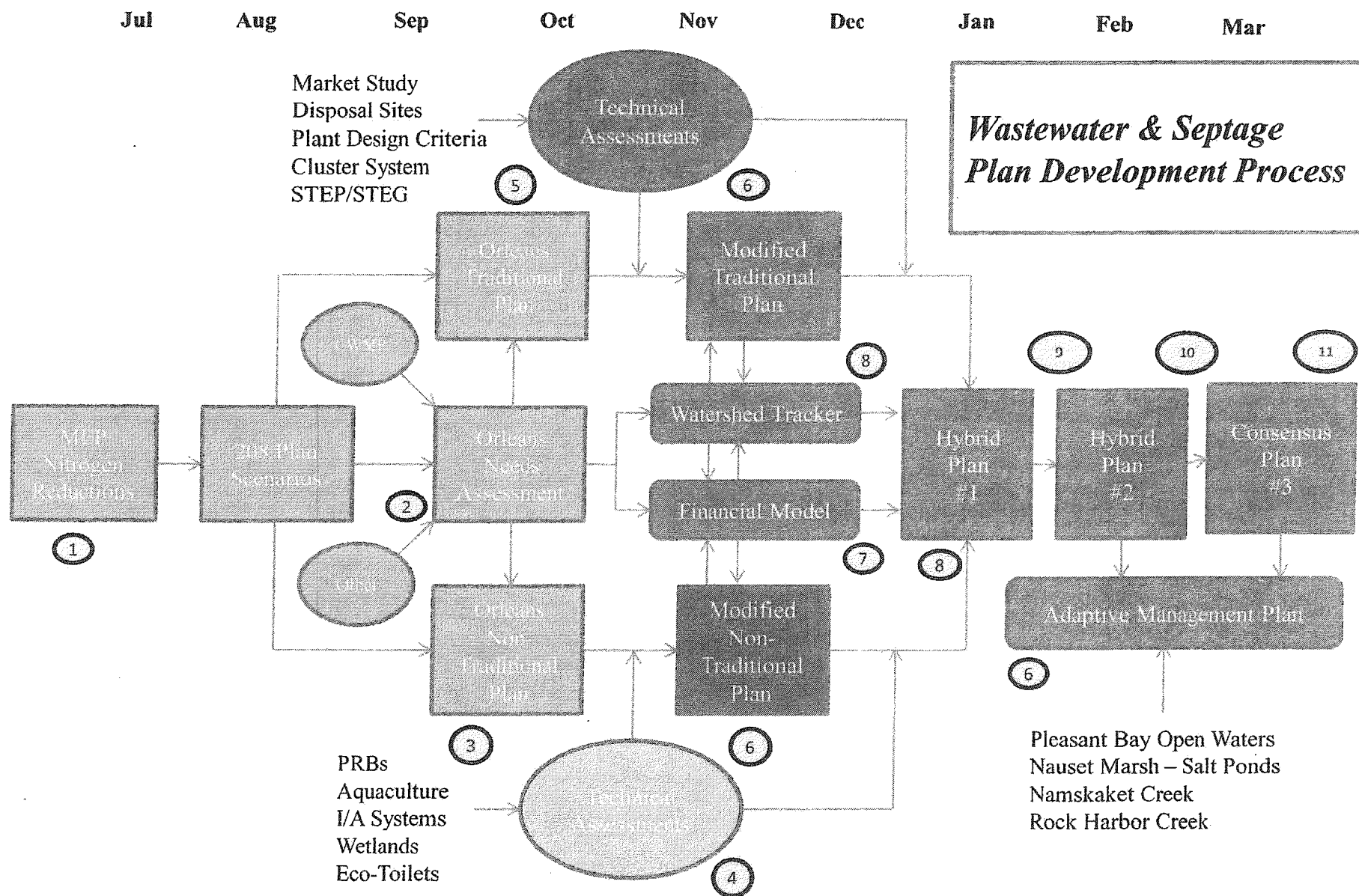
- Consider how best to begin to educate Eastham voters about the process and the possible advantages to cooperation with Orleans.

Related 208 information from Sept. 24 Lower Cape draft 208 presentation:

- CCC will provide water teams to help towns work on watershed based planning.
- There will be a Cape Cod Trust Fund to help towns in design stages.
- CCC will provide criteria for towns to estimate their portion of responsibility in shared watersheds.

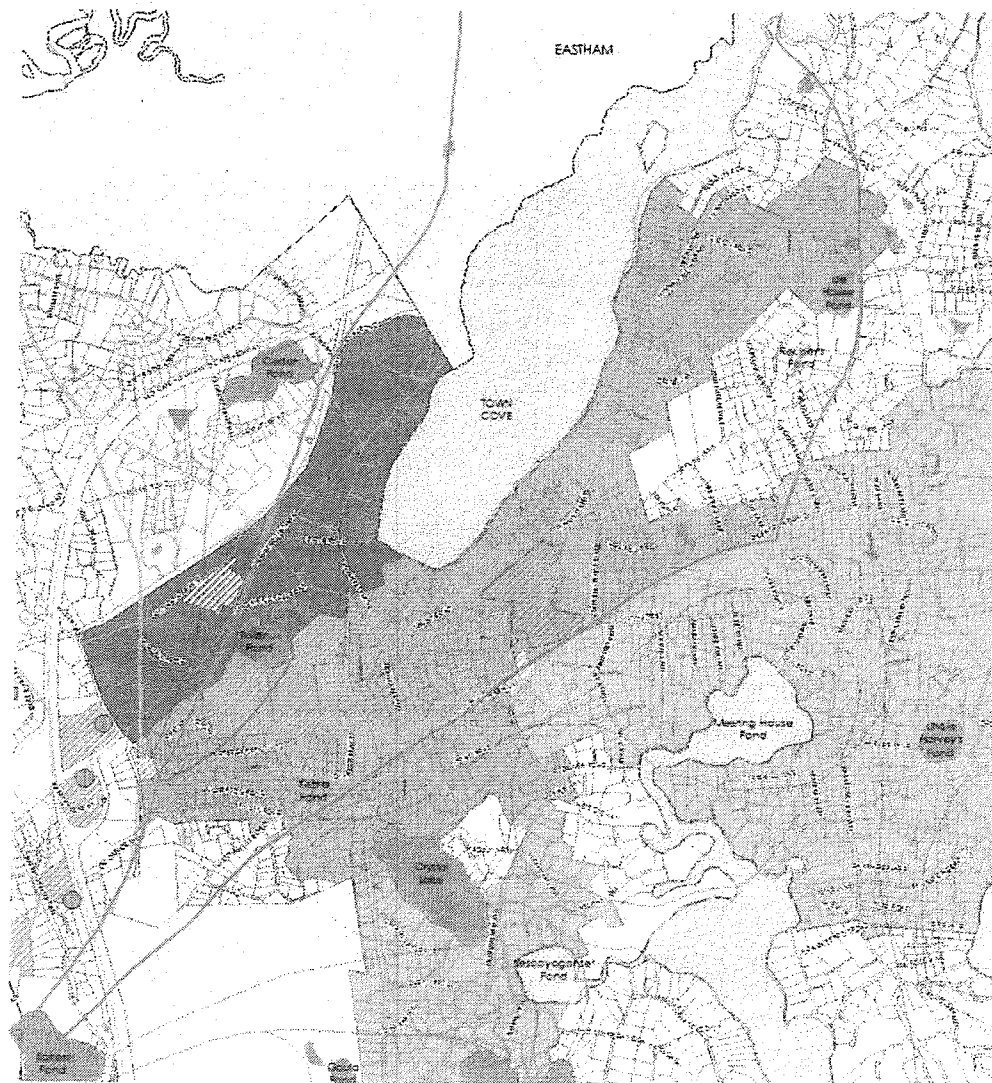
Finally, Mike Giggey of Wright Pierce, Orleans approved cwmp consultant, has stated that the cost of doing nothing is high. Current finding is that a 1% decline in water quality yields 7% lower home values.

1



21

Town Cove



Reduction Target = **5,739 kg/year**

208 Preliminary Traditional Scenario:

- 5,794 kg/year (from sewered lots)
- 101,812 gpd (Orleans only)

Orleans Modified Traditional Bookend:

- 425 kg/year (fertilizer/stormwater)
- 4,282 kg/year (sewered lots)
- 755 Lots
- 120,933 gpd wastewater flow
- 120,562 gpd wastewater treated at Tri-Town
- 371 gpd wastewater treated at satellite facility in Atlantic Ocean watershed
- Septage and solids treatment at Tri-Town

Town Cove Responsibility Split

Reduction Target = **5,739 kg/year**

Orleans Total Nitrogen Contribution:

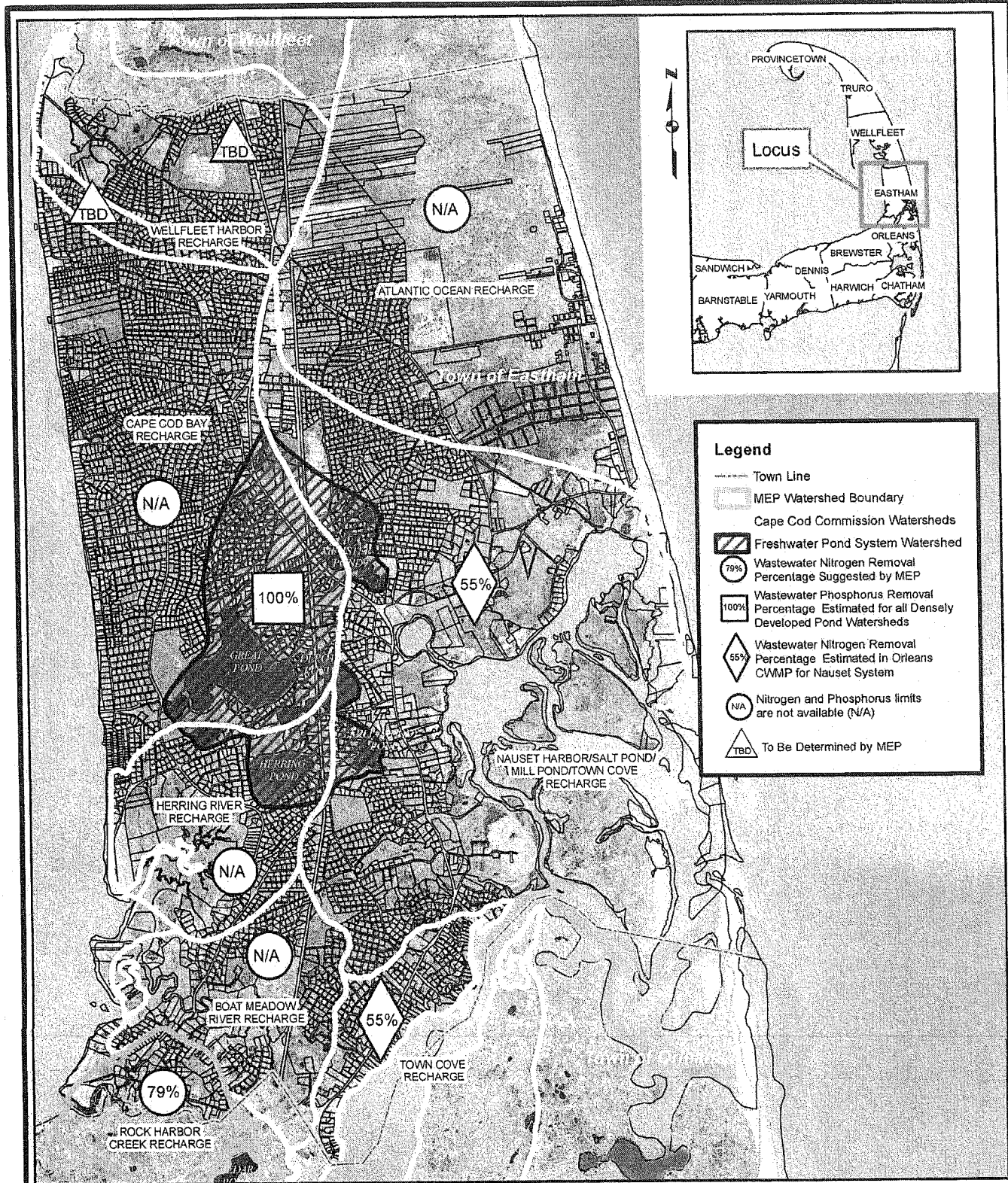
- 5,548 kg/year (72.5%)
- $72.5\% \times 5,739 = 4,161 \text{ kg/year}$

Eastham Total Nitrogen Contribution:

- 2,104 kg/year (27.5%)
- $27.5\% \times 5,739 = 1,578 \text{ kg/year}$

Therefore Eastham's complement to Orleans Bookend includes approx.:

- 117 kg/year (fertilizer/stormwater)
- 1,461 kg/year (sewered lots)
- Lots
 - 366 total Lots
 - ~254 need to be sewerred



STEARNS & WHEELER
Environmental Engineers & Scientists

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TOWN OF EASTHAM, MASSACHUSETTS

**WATERSHED DELINEATIONS AND
ESTIMATED % NUTRIENT REMOVAL**

FIGURE 4-1